

## Appendix J

# Forward Arming and Refueling Points

A FARP is the temporary arming and refueling facility that an aviation unit commander organizes, equips, and deploys to support combat tactical operations. This appendix provides information on operations, location, and safety procedures for FARPs.

## PURPOSE

J-1. Aviation provides a degree of versatility not replicated by other members of the combined arms combat team. It maneuvers rapidly and brings decisive combat power to bear at crucial points and times in the area of operations. Synchronizing aviation and ground maneuver forces allows the task force commander to shape the battleground and set the conditions for the close fight. Also, aviation's ability to rapidly deploy and operate effectively in austere environments is invaluable in SASO. In general, the same principles and tenets that apply to aviation forces in combat operations also apply for SASO. However, aviation units with SASO missions may use terms other than FARP to identify arming and refueling facilities.

J-2. During combat operations, the FARP increases the time-on-station for the commander by reducing the turnaround time associated with refueling and rearming of aviation assets. The increase in time-on-station gives the commander more time to apply continuous pressure on the enemy. The FARP provides fuel and ammunition for aviation units in combat and is flexible enough to be self-deployed or inserted by air. However, it must be properly task-organized to meet the Class III/V needs of mission aircraft.

## PERSONNEL

J-3. Personnel allocations for the FARP include the following MOSs:

- **55B Ammunition specialist.** Receives and transports Class V munitions from the supply point to the rearm pads. Has no aircraft-specific duties.
- **68J Aircraft armament/missile systems repairer.** Repairs aircraft fire control systems, loads and arms attack aircraft.
- **68X AH-64 Armament/electrical systems repairer.** Repairs fire control systems, loads and arms AH-64 aircraft.
- **77F Petroleum supply specialist.** Transports Class III and refuels aircraft.

In the heavy division/corps aviation attack battalions, 55B and 77F personnel are assigned to the Class III/V platoon of the battalion HHC. In light divisions, these personnel are assigned to the brigade HHC. Medical or maintenance personnel, battle damage assessment teams, Stinger teams, and others also may be positioned at the FARP.

## COMMAND, CONTROL, AND COMMUNICATIONS

J-4. The aviation commander is responsible for the overall success of the FARP. Based on METT-TC, the commander decides how FARP assets will be used to support his operational intent. Other command and control elements are as follows:

- **S3.** The S3 formulates the commander's plan and consults with the S4 and the HHC commander to ensure that the plan can be supported logistically.
- **S4.** The S4 calculates fuel and ammunition needed to support the mission, plans distribution of supplies, and coordinates requirements with higher headquarters.
- **Platoon leader.** The Class III/V platoon leader is responsible for accomplishing the FARP mission and keeping the S4 informed about the amounts of fuel and ammunition on hand.

## LOCATION

J-5. The FARP should be located as close to the area of operations as the tactical situation permits, usually as far forward as 18 to 25 kilometers (METT-TC dependent) behind the FLOT and within a committed brigade's area of operation. If possible, the FARP is kept outside the threat of medium-range artillery. Movement and resupply are by ground or air. A FARP is only expected to remain in one location for three to six hours, although the time may be influenced by METT-TC. Size depends on the number of aircraft to be serviced and the type of refueling equipment available. Four to eight refueling points are normally sufficient. The following METT-TC factors determine the location of a FARP:

- **Mission.** Deep, close, and rear are the three types of missions conducted on the battlefield. Unless the target is extremely large or the mission is lengthy, a deep attack normally does not require a FARP behind enemy lines. Most FARPs are located within the close area.
- **Enemy.** The S2 determines the type of threat likely to be encountered in a certain location, including enemy capabilities, posture, and weapon systems. The S2 determines the type of intelligence-gathering devices and sensors that the enemy has oriented on the proposed FARP position.
- **Terrain.** Terrain should be selected to allow for the tactical dispersion of aircraft and vehicles. Tree lines, vegetation, shadows, and built-up areas should be used to conceal FARP operations. Also, terrain folds and reverse slopes will mask the FARP and main ground and air routes from visual or electronic detection.
- **Troops.** The platoon leader determines if enough troops are available for FARP operations. The proper number and type of personnel must be present and trained on aircraft ammunition management, refueling, and weapons system loading. In most cases, FARP personnel are responsible for security.
- **Time available.** The duration of the mission is critical since more security and Class III/V products are required for longer missions.

Planners must include the length of time to drive or fly to the FARP. Setup and tear down, as well as distance from supply trains, are other critical factors to consider when selecting a site.

## EMPLACEMENT

J-6. The most efficient means of siting a FARP is by combining ground and air assets. FARPs should be separated by at least IBD from all inhabited sites. FARP emplacement depends on the system's mobility, aircraft requirements, enemy situation, higher echelon support, and expected operational time. The FARP is normally established using ground vehicles that carry bulk quantities of Class III/V supplies. Also, ground vehicles are the primary means for displacing and resupplying the FARP. The use of ground vehicles limits rapid positioning, and there is always the possibility of adverse road and traffic conditions. If a resupply vehicle is lost, it may jeopardize the success of the mission. Air emplacement offers speed and uses open fields as potential sites. Disadvantages include unavailability of aircraft and support vehicles.

J-7. The refueling and munitions areas of the FARP are collocated but separated as much as operations allow. Because of the hazards associated with Class III/V stocks, safety is a key factor in site layout and operations. Figure J-1 shows typical FARP layouts.

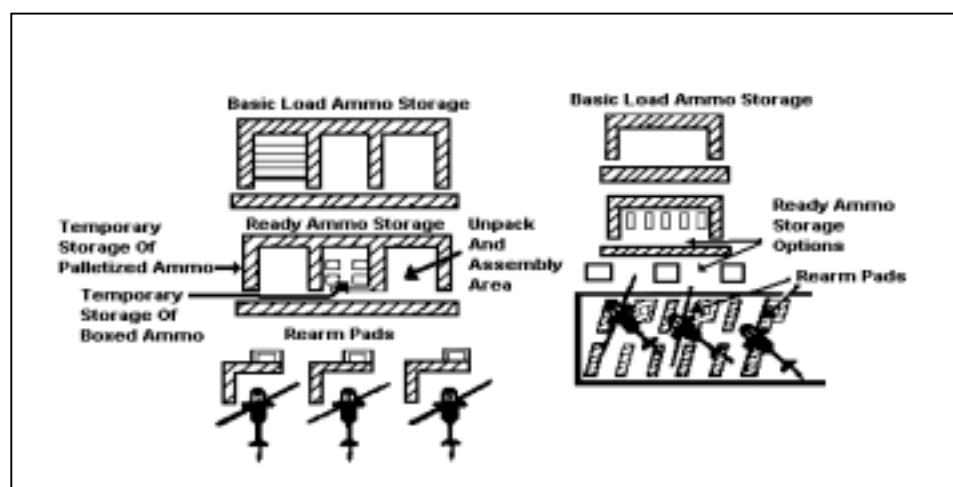


Figure J-1. Typical FARP layouts

## FARP AMMUNITION OPERATIONS

J-8. FARP ammunition operations include procedures for storage, safety, arming, and training. Generally, these procedures are subject to the same stringent safety requirements as munitions operations in any other tactical or training environment.

## STORAGE

J-9. The RASA contains the ammunition authorized to support initial arming of the aircraft and current missions. It is separated from the rearm pads by a

barricade and should have separate cubicles for assembling and disassembling of rockets, aircraft flares, and malfunctioned items.

J-10. The BLAHA, separate from the RASA, contains a specific quantity of munitions required and authorized to support at least three days of combat. The basic load may consist of small arms, grenades, mines, and aircraft-specific items. Store munitions by lot number to maintain lot integrity and accountability and to ensure the proper reporting of malfunctions.

J-11. The rearm pads are located near the aircraft with barricades between the aircraft, RASA, and rearm pads. Depending on surface type, movement from the rearm pads to the aircraft may be difficult. FARP personnel may need to improvise. Improvised trailers and carts may be used if the rated load of the trailer or cart is not exceeded, the load is secured and balanced, and the trailer or cart is covered to protect items from the weather.

## **SAFETY PROCEDURES**

J-12. All personnel must observe the safety procedures that follow to prevent accidental firing, damage to munitions and aircraft, and injury to personnel.

### **Fin Protectors**

J-13. Fin protector springs are designed to short-circuit the igniter leads, thus preventing accidental ignition. The shorting wire clips and fin protectors must be installed on rockets immediately after an aircraft launcher is unloaded and when the rockets are not in a launcher. A sufficient number of clips and protectors must be on hand at all times. Do not discard the clips and protectors once the aircraft is armed. They must be properly secured to prevent foreign object damage to aircraft.

### **Dropped Munitions**

J-14. Dropped items, crated or not crated, must be turned in to the supporting ASP. Complete rounds, rocket motors, or fuzed-warhead combinations that have been dropped may cause premature functioning or may not function properly.

### **Unfired Rockets**

J-15. After a mission, check the torque on all unfired rockets before loading for the next mission.

### **Barricades**

J-16. Barricades must be built around the RASA, the BLAHA, and the rearm pads. Barricades should be at least three feet thick to effectively reduce hazards from fire and explosion. Rockets should face the back of the barricade. See DA Pam 385-64 for further guidance.

### **Weather Protection**

J-17. Munitions must be protected from the weather. Missile systems are susceptible to heat damage. In a high-temperature environment, ensure that coverings do not create excessive heat. Dark covers, in particular, create excessive heat and should be avoided. Certain guided missiles, such as the

Hellfire, have explosively activated covers that protect them from the effects of weather.

### **Rocket Storage**

J-18. Rockets should not be stored on top of each other to avoid damage to the bottom layers. If they need to be unpacked, they should be stored on racks built at the site. Wooden pallets may be placed under rockets as long as they are blocked to prevent rolling. Never store rockets directly on the ground.

### **EXPLOSIVE LIMITS**

J-19. For maximum safety, the amount of munitions stored at the RASA and the rearm pads should always be kept to a minimum. The following limits should not be exceeded:

- Each rearm pad is limited to the amount of munitions required to fully arm one aircraft plus one reload. This facilitates switching the missile launcher for rocket launchers as the mission dictates.
- The ammunition for a second aircraft should be stored off the rearm pad, properly covered and barricaded.
- The RASA will meet requirements of DA Pam 385-64. See Table J-1 for the items typically used during rearm operations. Table J-2 shows the minimum distances permitted between rearm points, RASAs, and nonmunitions-related activities that require safety distance.

**Table J-1. Munitions Used During Helicopter Rearm Operations**

<b>ITEM</b>	<b>NET EXPLOSIVE WEIGHT (Per Round)</b>
Hellfire missile	34.4 pounds
TOW missile	12.18 pounds
Rocket, 2.75-in, HE (H489 or H490)	10 pounds
Rocket, 2.75-in, HE (H488 or H534)	11 pounds
Cartridge, 30mm, HE (B130 or B131)	.058 ounces
Cartridge, 20mm, HE (A653)	.028 ounces
Small arms ammunition	None

### **ARMING OPERATIONS**

J-20. Pads must contain the minimum amount of munitions needed to conduct efficient operations. Proper setup of the armament pad increases aircraft turnaround time. During combat operations, unless otherwise directed, munitions for one aircraft arming sequence should be placed on the rearm pad before the aircraft arrives and laid out in the order in which it will be loaded.

J-21. Some munitions containers and Hellfire missiles require two people to lift during loading. When a full complement of munitions types is required, the safest approach is to load the turret weapon system first and follow with the inboard wing stores. Arming instructions are in the aircraft operator manual.

**Table J-2. Distances Between Rearm Points and Ready Ammunition Storage Areas**

<b>REQUIRED DISTANCE (IN FEET)</b>			
<b>FROM</b>	<b>TO</b>	<b>Barricaded</b>	<b>Unbarricaded</b>
Rearm point	Rearm point	100*	100*
Rearm point	Inhabited buildings and unarmed aircraft	400	800
Rearm point	Public highways	240	480
Rearm point	POL storage or refuel facilities	450	800
Ready ammunition storage area	Rearm point	75	140
Ready ammunition storage area	Inhabited buildings and unarmed aircraft	50	1,010
Ready ammunition storage area	Public highways	305	610
Ready ammunition storage area	POL storage or refuel facilities	505	1,010
*Distance based on rotor clearance.			

J-22. Simultaneously arming and refueling minimizes the time that the aircraft is on the ground and increases turnaround time. This is a risky operation. Therefore, the aviation commander must ensure that all personnel are thoroughly trained and the SOP is well rehearsed.

J-23. Arming the weapon system is accomplished in a specific sequence. Initially, the weapon system must be placed in the safe mode, beginning with the outboard systems and moving inboard. The system is left on, and a stray current check conducted on the rocket pod. The turret weapon system and the wing stores opposite refueling port are the only weapon systems that should be armed while the aircraft is being refueled. Once refueling is complete, the inboard systems are loaded, followed by the outboard weapon systems on the refueling port side of the aircraft. Required maintenance equipment must be brought to the FARP to maintain the weapon systems.

## **TRAINING**

J-24. Mission success depends on the ability of FARP personnel to set up and provide rapid and responsive arming and refueling services. The different arming configurations of aircraft require armament personnel to be trained in the handling, loading, and arming of all armament systems. Armament technical manuals show the required training levels for aircraft armament/missile systems repairers. Because of the dangers of arming "hot aircraft," the commander must ensure that ammunition specialists are thoroughly trained in handling ammunition around aircraft. The training guidelines discussed below should be followed.

### **Training Realism**

J-25. Training must be as realistic as possible. All FARP operations must be practiced and conducted under combat-like conditions. Ensure that the program allows for 24-hour operations under varying levels of MOPP.

### **Operation Skills**

J-26. A successful FARP is the final product of a program that builds on individual skills and cross-trains assigned and attached personnel. Integrating individual skills with team training results in safe and well-coordinated operations. The commander must continually evaluate the FARP team's ability to deploy and conduct operations.

### **Individual and Collective Training**

J-27. FARP operations are successful when all personnel are trained to operate as a team. Individual and collective training for every team member should not be limited to just arming and refueling activities but should include the following:

- Firefighting and rescue procedures IAW FM 10-67-1.
- Class III/V helicopter sling load operations, to include hand and arm signals, IAW FM 10-450-3.
- Day and night land navigation proficiency.
- NBC detection and decontamination.
- Aircraft recognition.
- Self-aid and buddy-aid procedures.
- Night vision device training.
- Extensive driver training.